Naturally Occurring Changes in Women's Drinking From High School to College and Implications for Sexual Victimization

MARIA TESTA, PH.D.,^{a,*} AND JOSEPH H. HOFFMAN, M.A.^a

^aResearch Institute on Addictions, University at Buffalo, Buffalo, New York

ABSTRACT. Objective: The current study examined the natural trajectories of alcohol use among women as they transitioned from high school to college, considering changes in drinking for students at initially different levels of drinking. We examined the hypothesis that the association between college drinking and sexual victimization would be stronger for women with less high school drinking experience. **Method:** Female, college-bound, high school seniors were recruited from the community at the time of graduation ($N = 437$). Alcohol consumption and sexual victimization were assessed at the time of high school graduation (Time 0 [T0]) and at the end of the first (T1) and second (T2) semesters of college. **Results:** Abstainers and light drinkers increased alcohol consumption

from T0 to T1; however, consumption by those already engaging in heavy episodic drinking remained stable. Consumption did not increase for any group from T1 to T2. As expected, maximum consumption in college was strongly associated with experiencing incapacitated rape or other sexual victimization during the same semester; however, prior drinking experience did not moderate the relationship. **Conclusions:** Occasions of heavy drinking in college are a significant risk factor for sexual victimization for both experienced and inexperienced drinkers. Findings point toward universal prevention, ideally before college entry, as a strategy for reducing heavy episodic drinking and hence, college sexual victimization. (*J. Stud. Alcohol Drugs*, 73, 26–33, 2012)

A LARGE PROPORTION OF COLLEGE STUDENTS engage in heavy episodic drinking (HED), a behavior that is associated with a range of negative consequences (Nelson et al., 2009). For women in particular, there is a strong association between engaging in HED (four or more drinks on an occasion for women) and experiencing alcohol-related sexual assault (Mohler-Kuo et al., 2004; Testa and Livingston, 2009). Although students who enter college as heavy drinkers have been treated as a high-risk group in need of intervention (Marlatt et al., 1998), many students who do not engage in HED in high school initiate HED in college (Reifman and Watson, 2003; Weitzman et al., 2003). Compared with experienced drinkers, new drinkers may be at even greater risk of experiencing negative consequences per unit of alcohol consumed (Neal and Carey, 2007). The current study was designed to examine the natural trajectories of alcohol use among a sample of women as they transitioned from high school to college, considering changes in drinking for students at initially different levels of drinking. In addition, we considered whether the association between college drinking and college sexual victimization differed for women with different levels of prior drinking experience.

Changes in drinking from high school to college

Many studies have shown that there is an aggregate increase in alcohol consumption from high school to college, including an increase in occasions of HED (O'Malley and Johnston, 2002; Sher and Rutledge, 2007). High school drinking is a robust predictor of college drinking (Borsari et al., 2007), suggesting that the rank ordering of drinking levels remains fairly constant. However, few studies have examined whether students who begin college at varying levels of consumption (e.g., abstainers, light drinkers, heavy drinkers) increase their drinking in similar ways. For example, students who are already drinking heavily by the end of high school might appear to be at particular risk of further increasing their drinking as they enter the more permissive college environment. However, some studies suggest that early initiators reach an early, high plateau before college age but then do not increase their consumption during their college years (e.g., Schulenberg et al., 1996). Accordingly, among a sample of students drinking heavily before college, indicators of drinking across the first 2 years stayed steady or declined modestly (Marlatt et al., 1998). In a study of men entering college, the overall increase in drinking associated with college entry was limited to men who were not already drinking in high school; those already drinking before college did not increase their consumption (LaBrie et al., 2008b).

A substantial proportion of students who consume little or no alcohol before college initiate drinking as they enter college. For example, Weitzman et al. (2003) found that 26%

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*Correspondence may be sent to Maria Testa at the Research Institute on Addictions, University at Buffalo, 1021 Main Street, Buffalo, NY 14203 or via email at: testa@ria.buffalo.edu.

of students not engaging in HED before college initiated drinking at this level during their freshman year. Similarly, Reifman and Watson (2003) found that 21% of students who did not previously engage in HED in high school reported doing so in the past 2 weeks when surveyed during the first college semester. In this study, female students who were not engaging in HED at the end of high school were at greater risk of initiating this behavior in college than were male students. Surprisingly few studies have compared the change in drinking from high school to college separately for students with different levels of precollege drinking. This limited body of research suggests that college entry may have less impact on the drinking patterns of heavy drinkers than on the drinking of less experienced drinkers.

Drinking experience and consequences of alcohol consumption

On average, new drinkers report lower levels of consumption in their first year of college than do experienced drinkers (e.g., Parks et al., 2008). However, inexperienced drinkers may be at relatively greater risk of negative alcohol consequences after controlling for the amount consumed (Lewis et al., 2009; Simons et al., 2010). For example, Neal and Carey (2007) found that the positive daily relationship between blood alcohol concentration (BAC) and number of alcohol consequences reported that day was moderated by typical drinking level. That is, the relationship between amount consumed and likelihood of consequences was stronger for lighter drinkers. Because new drinkers have less experience with the effects of alcohol, they may be more prone to experiencing negative consequences even at lower levels of intoxication.

One common consequence of college HED that is largely specific to women is alcohol-related sexual assault or incapacitated rape (see Testa and Livingston, 2009, for a review). The risk of sexual victimization appears to be highest during the first year of college, with declines over subsequent years (Humphrey and White, 2000). Because peak vulnerability to sexual assault coincides with the aggregate increase in drinking that occurs with entry to college, some have speculated that the two are linked (Mohler-Kuo et al., 2004; Parks et al., 2008). That is, new drinkers, who have little tolerance for alcohol and little experience coping with this impairment, may be particularly vulnerable to alcohol-related sexual victimization during their first year of college. Parks et al. (2008) tested but failed to support this hypothesis, finding that it was not new drinkers who were at the greatest risk of college sexual victimization but women who increased their drinking from high school to college. However, their analysis failed to control for the amount of alcohol consumed, and the increasers drank substantially more than the new drinkers. In a daily report study of college students, Neal and Fromme (2007) found, as expected, that higher BACs on a given day

increased the odds of being a victim of sexual coercion on that day. However, there was also an interaction of typical BAC with daily BAC, such that for lighter drinkers, each .01 increase in BAC increased the odds of sexual coercion victimization by 1.08 compared with 1.05 for typically heavier drinkers. Thus, similar to Neal and Carey (2007), less experienced drinkers appeared relatively more vulnerable to the negative consequences of intoxication than more experienced drinkers.

Present study

The present analyses examined naturally occurring changes in women's drinking that occur over the transition from high school through the first year of college. We compared the trajectories of alcohol use for women who reported varying levels of alcohol consumption at the end of high school, hypothesizing that increases would be steeper for those not already engaging in regular HED. We also considered the association between college alcohol consumption and the risk of experiencing sexual victimization during the first year of college. We examined whether the association between college alcohol consumption and sexual victimization differed for women at different baseline levels of HED experience, testing the hypothesis that inexperienced drinkers are relatively more vulnerable to sexual victimization at comparable levels of consumption (e.g., Neal and Carey, 2007; Neal and Fromme, 2007).

Method

Participants

Participants consisted of 437 female college freshmen who served as a control group for a randomized controlled trial (see Testa et al., 2010b). They were recruited by telephone just before high school graduation, from households in Erie County, NY. At the time of recruitment, students were on average 18.1 ($SD = .33$) years old. The majority were White (90.9%, compared with 82.2% White for the county) and lived with both mother and father (87.1%). Median household income was \$75,000, which is close to the median income of \$74,000 for college freshmen nationally (Pryor et al., 2007). In the fall semester, students attended more than 100 different colleges (4-year colleges: 78.9%; 2-year colleges: 20.8%), the majority of which were public institutions located in western New York. Although students attending 2-year colleges drank less on average than students at 4-year colleges, because type of college did not moderate the pattern of results, all students were analyzed together (additional information is available from the first author on request).

Potential participants were selected at random from yearbook photos from local city ($n = 5$) and suburban (n

= 16) high school graduating classes of 2004, 2005, 2006, and 2007. Just before high school graduation, students and their mothers were contacted by telephone and offered the opportunity to participate in a longitudinal study of transition to college. To be eligible, the graduating senior had to be planning to enter a 2- or 4-year college in the fall and be currently living with her mother (or a mother figure, such as a grandmother), and both mother and daughter had to be fluent in English, agree to participate, and provide written informed consent. We identified 3,153 female students through yearbook photos and, using public telephone directories, were able to locate 1,354 of these. Of these, 133 were ineligible (primarily because they were not planning to attend college in the fall), 153 refused, and 1,068 (78.9%) agreed to participate. Baseline questionnaire booklets, sent in May or June of the senior year, were completed by 992 (92.9%) students. After completion of baseline or Time 0 (T0) measures, participants were randomly assigned to an intervention ($n = 523$) or control ($n = 469$) condition. The sample used in the primary analyses consisted of control group participants who completed baseline (T0) measures, attended college in the fall semester (12 women, or 2.7%, did not), and completed assessments at the end of the first semester (T1) and second semester (T2) of college. Participants who completed all three assessments ($n = 416$, 88.7% completion) did not differ from those who did not ($n = 53$) on T0 alcohol consumption but were more likely to report T0 sexual victimization (62.3% vs. 45.7%, respectively), $\chi^2(1) = 5.12$, $p = .02$. Participants were paid \$30 for completing baseline questionnaires and \$50 for follow-ups. All procedures were approved by the Social and Behavioral Sciences Institutional Review Board at the University at Buffalo.

Measures

Only measures used in the current analyses are described. Measures were also completed by mothers; however, mothers' data are not used in the current analyses.

Alcohol consumption. At each wave, students were asked several questions about their drinking over the previous 90 days (T0) or over the past semester (T1, T2). These included items assessing frequency of any drinking, typical quantity of drinking, frequency of drinking four or more drinks on an occasion, frequency of drinking to intoxication, and the maximum number of drinks consumed on one occasion during the past semester (open ended). Respondents also indicated the average number of drinks typically consumed on each day of the week. These responses were summed to provide an index of total weekly drinks. We also created a composite HED frequency measure by averaging frequency of drinking four or more drinks and frequency of drinking to intoxication. These items were both scored on a 6-point Likert scale ranging from 0 (*never*) to 5 (*5 or more days*

per week) and were highly correlated (.85 at baseline, .91 at follow-up).

Sexual victimization. At each wave, students completed a 20-item measure, revised from the Sexual Experiences Survey (Testa et al., 2010a), that assessed unwanted sexual experiences occurring over the past semester (T1, T2) or since age 14 (T0). The measure expanded on earlier versions of the Sexual Experiences Survey (Koss et al., 1987; Testa et al., 2004) by crossing each of four perpetrator tactics (verbal coercion, threats of physical harm, force, and incapacitation from alcohol or other drugs) with five outcomes (contact, attempted intercourse, completed vaginal intercourse, oral sex, and anal sex). Women were considered to have experienced incapacitated rape if they responded positively to at least one of four items assessing attempted intercourse, completed intercourse, oral sex, or anal sex occurring as a result of incapacitation. Those who responded positively to any of the 20 items were considered to have experienced any victimization. All women who responded positively to one or more items on the revised Sexual Experiences Survey were asked additional questions regarding the most recent experience, including relationship to the perpetrator, amount of force used, and their use of alcohol or other drugs at the time of the incident.

Results

Changes in alcohol consumption over time

The first set of analyses was designed to compare naturally occurring trajectories of alcohol use from the end of high school to the end of freshman year in college for students at different levels of precollege drinking. Based on reports of alcohol consumption during the 90 days before high school graduation, students were classified a priori into four groups reflecting different levels of drinking experience. These included abstainers ($n = 136$), light drinkers who reported never drinking four or more drinks at one sitting ($n = 95$), those reporting occasions of four or more drinks less than once a month ($n = 77$), and those reporting occasions of consuming four or more drinks at least monthly ($n = 124$). Mean levels of total drinks per week, maximum drinks per occasion, and frequency of HED (a composite frequency of four or more drinks and/or drinking to intoxication) for the four groups at T0, T1, and T2 are presented in Table 1. These alcohol measures were highly intercorrelated (at T1, r ranged from .79 to .84; at T2, r ranged from .76 to .82).

We expected that overall alcohol consumption would increase from T0 to T1. Consistent with previous research showing that a high proportion of college students initiate HED on transition to college, of the 231 women who reported abstaining or light drinking (no occasions of four or more drinks) at T0, 111 of them (48.1%) reported at least occasional HED at T1. As shown in Table 1, repeated mea-

TABLE 1. Means, standard deviations, and repeated measures significance tests of three drinking measures by baseline drinking group

Drinking measure and baseline drinking group	Mean values over time by group			Significance tests		
	Baseline High school (T0)	Follow-up Fall (T1)	Spring (T2)	Group test <i>F</i>	Time test <i>F</i>	Group × Time test <i>F</i>
	<i>M^a</i> (<i>SD</i>)	<i>M^b</i> (<i>SD</i>)	<i>M^b</i> (<i>SD</i>)			
Total number of drinks per week				104.71***	28.86***	1.59
Abstainers	0.00 (0.00)	2.03 (3.43)	2.40 (4.98)			
Drinking but no 4+	1.51 (1.72)	4.22 (4.52)	4.14 (4.69)			
4+ less than monthly	3.97 (2.84)	6.06 (5.70)	5.76 (5.61)			
4+ monthly or more	10.90 (8.28)	11.89 (8.63)	11.53 (8.68)			
Maximum number of drinks on one occasion				152.22***	54.50***	9.13***
Abstainers	0.00 (0.00)	2.48 (3.21)	2.57 (3.21)			
Drinking but no 4+	2.20 (1.22)	4.74 (3.56)	4.71 (3.54)			
4+ less than monthly	4.76 (2.15)	5.40 (3.60)	5.36 (3.39)			
4+ monthly or more	7.70 (2.95)	8.39 (3.38)	7.79 (3.62)			
Frequency of HED				189.57***	46.13***	23.06***
Abstainers	0.00 (0.00)	0.55 (0.85)	0.59 (0.91)			
Drinking but no 4+	0.17 (0.31)	1.01 (0.98)	1.16 (1.00)			
4+ less than monthly	1.09 (0.32)	1.32 (0.94)	1.33 (0.94)			
4+ monthly or more	2.43 (0.64)	2.27 (1.02)	2.11 (1.07)			

Notes: Tests are based on repeated measures analyses of variance. The listwise sample sizes for the three drinking measures were 409, 405, and 412 for total drinks per week, maximum drinks, and frequency of HED, respectively. Baseline (T0) = just before graduation in senior year of high school; T1 = end of fall semester of college; T2 = end of spring semester of college; HED = heavy episodic drinking, defined as average frequency of drinking four or more drinks or to intoxication. ^aMean number over the last 90 days; ^bmean number over the fall (T1) or spring (T2) semester. ****p* < .001.

FIGURE 1. Trajectories of maximum drinks on an occasion over the transition from senior year in high school (T0) to the first year of college (T1 = fall semester, T2 = spring semester) by baseline drinking category (*n* = 405)

tures analysis of variance revealed, as expected, a significant within-subjects effect of time on all three alcohol variables. Also as expected, there was a significant effect of initial drinking group, indicating that the four groups differed in drinking levels. In addition, for maximum drinks and for HED, the amount of increase over time differed by initial drinking group, as evidenced by significant Group $\times$ Time interactions. For example, for maximum drinks, there was a significant interaction, $F(6, 802) = 9.13, p < .001$, partial $\eta^2 = .06$, as well as a between-subjects effect of initial drinking group, $F(3, 401) = 152.22, p < .001$, partial $\eta^2 = .53$, and a significant within-subjects effect of time, $F(2, 802) = 54.50, p < .001$, partial $\eta^2 = .12$. The Group $\times$ Time interaction for total drinks per week was not significant.

Figure 1 depicts the trajectories for maximum drinks per occasion at T0, T1, and T2. A comparison of the slopes shows that there were significant increases from T0 to T1 for abstainers (mean increase in maximum drinks = 2.48, $p < .001$) and light drinkers (mean increase in maximum drinks = 2.54, $p < .001$) but no corresponding significant increases for those already engaging in occasional HED (mean increase = 0.64, $p = .32$) or regular HED (mean increase = 0.69, $p = .10$) before college. There was no change in maximum drinks consumed between T1 and T2 (first and second semesters of college) for any of the groups. The pattern of results was similar when the frequency of HED composite was used as the dependent variable (not shown).

Risk of sexual victimization associated with drinking experience and current drinking

Next, we considered the association between alcohol consumption and sexual victimization. As expected, T0 drinking group was associated with adolescent sexual victimization. That is, incapacitated rape was reported by 3.7% of abstainers and 5.3% of light drinkers compared with 20.8% of those engaging in occasional consumption of four or more drinks

and 36.3% of those engaging in at least monthly consumption of four or more drinks. The proportion reporting any adolescent sexual victimization revealed the same linear increase associated with increasing T0 drinking experience: 27.2%, 40.0%, 55.8%, and 66.9%.

We also expected that risk of college sexual victimization would increase with increasing levels of college alcohol consumption. As shown in Table 2, both any sexual victimization and incapacitated rape generally increased with increasing levels of maximum alcohol consumption. Results are similar when frequency of HED is used as the independent variable (not shown).

We then tested the hypothesis that the association between T1 maximum drinks and incapacitated rape/attempted rape at T1 would be stronger for inexperienced drinkers than for those with more high school drinking experience. Moderated hierarchical logistic regression was used to determine whether there was a significant interaction between T0 drinking group and T1 maximum alcohol consumption (Table 3). On the first step, we entered T0 drinking group using a series of dummy variables, with abstainers as the referent group; T0 incapacitated rape was coded dichotomously. Both T0 incapacitated rape and T0 drinking group were significant predictors of T1 incapacitated rape. However, when T1 maximum drinks was entered on the second step, precollege drinking category was no longer significant. On the third step, the interaction of T0 drinking category and T1 maximum drinks was entered; the interaction term was not significant. Thus, the probability of experiencing incapacitated rape in the first semester of college was predicted by maximum alcohol consumption during the fall semester, regardless of precollege drinking experience. The pattern of results was the same when any T1 sexual victimization was used as the dependent variable. We also predicted T2 incapacitated rape from T2 maximum drinks and any T2 sexual victimization from T2 maximum drinks (not shown). Results for the second semester were similar except that T0 drinking group was not a significant predictor of T2 incapacitated rape, even on the first step.

The above analyses are not event based but rather show an association between drinking patterns over a semester and the occurrence of any sexual victimization during that same semester. However, previous research shows that the majority of college sexual victimization incidents occur when the woman has been drinking (Abbey, 2002). At T1 and T2, women who reported an experience of victimization were asked about their substance use at the time of the most recent incident during the semester. As expected, and consistent with the hypothesis that alcohol use increases immediate vulnerability to sexual victimization, the majority of these incidents included alcohol use. At T1, 79 of 109 (72.5%) of these incidents involved the victim drinking at the time (3 more involved drug use only). At T2, the proportion was 49 of 70 (70.0%), with 2 more involving drugs only. Among

TABLE 2. Prevalence of any sexual victimization and of incapacitated attempted or completed rape at T1 and T2 by maximum drinks on an occasion

Maximum drinks on an occasion at T1 or T2	Fall (T1)		Spring (T2)	
	Any victimization, %	IR, %	Any victimization, %	IR, %
0	7.69	0.00	2.56	1.28
1-3	17.11	1.32	10.59	2.35
4-6	25.69	5.56	20.72	1.80
7-9	40.70	13.95	21.69	4.82
≥ 10	58.57	25.71	43.10	17.24
Any	28.70	8.58	18.55	4.58

Notes: Categories of maximum drinks at T1 were used for the calculation of prevalence of victimization at T1, and categories of maximum drinks at T2 were used for the calculation of prevalence of victimization at T2. At T1, the sample sizes for the drinking categories were 91, 76, 109, 86, 70, and 432 total; at T2, the sample sizes were 78, 85, 111, 83, 58, and 415 total. IR = incapacitated rape.

TABLE 3. Logistic regression models predicting occurrence of incapacitated rape and any sexual victimization in the fall semester of college (T1)

Variable	Outcome at T1					
	Incapacitated rape (<i>n</i> = 426)			Any sexual victimization (<i>n</i> = 427)		
	$\Delta\chi^2$	Initial OR	Final OR	$\Delta\chi^2$	Initial OR	Final OR
Step 1	34.21***			78.17***		
T0 victimization		2.53*	2.24		5.08***	4.55***
T0 light drinker ^a		1.18	2.17		2.10*	1.27
T0 occasional HED ^a		0.24	0.42		1.02	0.69
T0 regular HED ^a		4.00**	2.86		2.92**	0.43
Step 2	14.03***			29.79***		
T1 max. drinks		1.20***	1.32*		1.21***	1.14
Step 3	1.24			2.20		
T1 Max. Drinks $\times$ T0 Light Drinker		0.85	0.85		1.05	1.05
T1 Max. Drinks $\times$ T0 Occasional HED		0.84	0.84		1.02	1.02
T1 Max. Drinks $\times$ T0 Regular HED		0.90	0.90		1.15	1.15
Total χ^2		49.48***			110.16***	

Notes: T0 victimization consisted of T0 incapacitated rape for the first equation and any T0 sexual victimization for the second equation. OR = odds ratio; HED = heavy episodic drinking; max. = maximum. ^aMembership in baseline (T0) drinking group is coded with three dummy variables for light drinkers (no occasions of 4+ drinks), occasional HED drinkers (4+ drinks less than once a month), and regular HED drinkers (4+ drinks on an occasion monthly or more often); the baseline abstainers are the omitted reference group in these analyses.

* $p < .05$; ** $p < .01$; *** $p < .001$.

those women using alcohol at the time of the event, the mean number of drinks consumed was 5.53 ($SD = 2.86$) at T1 and 5.52 ($SD = 3.08$) at T2.

As Table 2 illustrates, rates of sexual victimization were lower at T2 compared with T1. To test whether the association between maximum drinks and sexual victimization was weaker in the second semester compared with the first, we used repeated measures logistic regression (also known as generalized estimating equations) to model the likelihood of incapacitated rape as repeated measures over T1 to T2. Predictors include current maximum drinks, time, and the interaction between the two. The test of the product term indicates whether the linear relationships between maximum drinks and the odds of victimization at each time (i.e., the slopes) are significantly different at T1 and T2. The main effects model for incapacitated rape showed significant effects of time and maximum drinks: The odds of incapacitated rape decreased with time from T1 to T2 ($b = -0.650$, $p < .05$) and increased with maximum drinks ($b = 0.218$, $p < .001$). However, the interaction between time and maximum drinks was not significant ($b = -0.009$, $p = .89$). The pattern of results was identical when any sexual victimization was used as the outcome. When the analyses were repeated using frequency of HED as the independent variable, the Time $\times$ HED interaction was significant (odds ratio [OR] = 0.59, $p < .05$) for incapacitated rape and marginally significant (OR = 0.78, $p = .07$) for any victimization. This suggests a tendency for the HED–victimization relationship to be weaker in the second semester rather than in the first semester.

Discussion

This study provides a detailed look at naturally occurring changes in women's drinking across the transition from high school to college and the risk of sexual victimization associated with different drinking levels. As expected, overall alcohol consumption increased from high school to college, and the rank ordering of drinking levels remained constant. However, whereas there were significant increases in drinking among women who were abstainers and light drinkers in high school, women already engaging in HED in high school maintained but did not increase their drinking as they entered college. Although this pattern is consistent with that observed in a few previous studies (LaBrie et al., 2008b; Sher and Rutledge, 2007), it has not received a great deal of attention. A somewhat surprising finding was that overall drinking remained constant from the first to the second semester for women at all levels of consumption. This pattern is somewhat at odds with previous research showing continued increases in substance use throughout college (McCabe et al., 2005; White et al., 2005, 2006). However, McCabe et al. (2005) found that continued increases in drinking were more pronounced among male college students than they were among female college students, who showed little increase from the first to the second year. Unfortunately, the limited number of data points in the current study prevents us from drawing conclusions about longer term trajectories.

The second goal of the study was to consider the association between college alcohol consumption and risk of sexual

victimization and whether this association was stronger for inexperienced drinkers. As expected, women's maximum consumption of alcohol and frequency of HED were both strongly and positively associated with their concurrent risk of both incapacitated rape and sexual victimization more generally. However, contrary to the hypothesis that less experienced drinkers would exhibit greater vulnerability associated with comparable levels of consumption, the effect of current drinking did not differ according to prior experience with drinking. Findings do not support those of Neal and Fromme (2007), who found that each unit increase in BAC increased odds of victimization more sharply for lighter drinkers than for heavier drinkers. However, that study examined the relationship on a daily basis and had much greater statistical power to detect a modest event-level effect. Although we failed to find that new drinkers were at greater risk than experienced drinkers who consume comparable amounts of alcohol, it is important to note that abstaining from HED during high school did not offer any protection against college victimization. Thus, although in general women who abstain from HED in high school are at lower risk of sexual victimization in college, to the extent that these women engage in HED in college (as a substantial proportion do), risk of victimization increases accordingly.

Rates of incapacitated rape and other sexual victimization declined from the first to the second semester, consistent with other studies showing decreased sexual victimization across 4 years of college (Humphrey and White, 2000; Parks and Taggart, 2009). The decline in sexual victimization across time suggests that experience with college lifestyle may help women to manage risks and reduce their vulnerability. For example, women may learn through their own observations or through the experiences of others to avoid certain types of situations (e.g., fraternity parties) and certain types of men (e.g., "players"). Alternatively, there may be changes in social activities from the first to the second semester. Although alcohol consumption was still predictive of victimization in the second semester, there was a modest tendency for the relationship to become somewhat weaker, at least when frequency of HED was used as the predictor. More data points are needed to determine whether this is a trend or an anomaly.

As in any study, there are limitations to be considered. As noted, we relied on a limited number of data points. Thus, we do not know whether the apparent stability in drinking from T1 to T2 is maintained past the second semester. Our use of retrospective assessments of average drinking over the past 3 months precludes our being able to determine temporal associations between specific levels of consumption and immediate risk of victimization. However, because the majority of sexual victimization incidents occurred when the woman had been drinking, it is likely that drinking contributed to these events. Finally, although the sample appeared to be reasonably representative of the local college-bound population

and retention was good, it was limited to a single geographic area and findings may not generalize.

The study has implications for the prevention of college HED and sexual victimization. First, findings reiterate the important role of HED as a risk factor for college women's sexual victimization. Although we cannot establish a causal association with these data, we believe they are consistent with calls to reduce the high rates of sexual victimization by reducing HED (Testa and Livingston, 2009). That increases in drinking from high school to college primarily occurred among light drinkers and abstainers supports the need for universal alcohol prevention efforts (e.g., LaBrie et al., 2008a; Larimer et al., 2007; Weitzman and Nelson, 2004) rather than limiting efforts to those already engaging in HED. Moreover, that increases in drinking occurred between high school graduation and the end of the first semester of college supports a need for prevention efforts before college entry (Testa et al., 2010b; Turrissi et al., 2001). On the other hand, most women who engaged in HED in high school continued to do so in college, and, as such, they remain at elevated risk of experiencing sexual aggression in college. These women may benefit from a more intensive drinking reduction intervention or at least from an intervention focused on reducing harm associated with drinking.

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